CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method for routing data across an enterprise network including a plurality of optical burst-switched (OBS) networks, comprising:

receiving a data transmission request from a node in a first network identifying a destination node in a second network remote to the first network to where the data is to be transmitted, wherein transmission of the data requires the data to be routed along a route that spans at least a portion of multiple networks, including at least one OBS network;

employing an external gateway protocol to route the data between egress and ingress nodes of the first, second, and any intermediate network(s) along the route, wherein the external gateway protocol includes an extended version of a Border Gateway Protocol (BGP) that includes an extension to the path attributes field in a BGP UPDATE message to enable advertisement of availability or non-availability of one or more communication paths between an ingress and an egress BGP router in a given OBS network;

employing an internal routing protocol to route the data through the first and second networks and any intermediate networks along the route; and

dynamically updating a routing table of a given BGP router in response to a route advertisement contained in the BGP UPDATE message received by the given BGP router.

2. (Original) The method of claim 1, wherein each of the first and second networks comprise OBS networks.

3. (Original) The method of claim 1, wherein the route traverses at least one intermediate network comprising an OBS network.

4. (Original) The method of claim 1, wherein the first network comprises a non-OBS network.

5. (Original) The method of claim 1, wherein the second network comprises a non-OBS network.

6. (Original) The method of claim 1, wherein the OBS network comprises a photonic burst-switched (PBS) network.

7. (Previously Presented) The method of claim 6, wherein the OBS network comprises a wavelength-division multiplexed (WDM) PBS network.

8. (Cancelled)

9. (Cancelled)

10. (Previously Presented) The method of claim 1, wherein the extension to the path attributes in the BGP UPDATE message includes an available wavelength attribute that indicates a status of the current wavelength availability between neighboring OBS networks.

11. (Previously Presented) The method of claim 1, wherein the extension to the path attributes in the BGP UPDATE message includes an available fiber attribute that that indicates a status of the current fiber availability between neighboring OBS networks.

12. (Previously Presented) The method of claim 1, wherein the extension to the path attributes in the BGP UPDATE message includes a connection attribute that indicates whether an a connection to an OBS network is available or not.

13. (Original) The method of claim 1, wherein data is routed between networks using a hop-by-hop routing scheme under which current routing information is considered at each hop to determine the next hop.

14. (Previously Presented) The method of claim 1, further comprising co-locating an OBS label edge router with an BGP router in at least one OBS networks.

15. (Original) The method of claim 1, wherein data is routed between networks using a packetized transmission scheme, while data is routed across an OBS network by assembling packetized data into one or more data bursts and sending the one or more data bursts across a lightpath spanning an ingress and egress node of the OBS network.

16. (Previously Presented) A method comprising:

configuring a plurality of optical burst-switched (OBS) networks to enable data transmission between each other;

modeling each OBS network as an autonomous system from an external routing standpoint;

designating at least one edge node in each OBS network as a Border Gateway Protocol (BGP) router for external routing between OBS networks and a OBS label edge router (LER) for internal routing within a OBS network;

interchanging BGP UPDATE messages between the edge nodes that are designated as BGP routers, the BGP UPDATE messages including an extension to a path attributes field to enable advertisement of availability or non-availability of one or more communication paths between an ingress and an egress BGP router in a given OBS network; and

dynamically updating routing tables for each BGP router in response to route advertisements contained in the BGP UPDATE messages.

17. (Original) The method of claim 16, wherein each OBS network comprises a photonic burst-switched (PBS) network.

18. (Original) The method of claim 16, wherein each OBS network comprises a wavelength-division multiplexed (WDM) PBS network.

19. (Original) The method of claim 16, further comprising:

configuring a respective router operatively coupled to at least one non-OBS network to enable data transmissions between said at least one non-OBS network and at least one of the plurality of OBS networks; and

dynamically updating a routing table for each respective router in response to BGP UPDATE messages received by each respective router.

20. (Original) The method of claim 16, wherein said at least one non-OBS network comprises an Ethernet-based network.

21. (Previously Presented) An apparatus for use in an optical burst-switched (OBS) network, comprising:

optical switch fabric, having at least one input fiber port and at least one output fiber port; and

a control unit, operatively coupled to control the optical switch fabric, including at least one processor and a storage device operatively coupled to said at least one processor containing machine-executable instructions, which when executed by said at least one processor perform operations to enable the apparatus to function as a Border Gateway Protocol (BGP) router, including:

receiving lightpath route availability information corresponding to an availability of a route that may be used to route data through an OBS network in which the apparatus may be deployed;

generating an Border Gateway Protocol (BGP) UPDATE message including an extension to a path attributes field to enable advertisement of availability or non-availability of one or more communication paths between an ingress and an egress BGP router in a given OBS network; and

sending the BGP UPDATE message to another BGP router that is external to the OBS network in which the apparatus may be deployed to advertise the availability of the route.

22. (Original) The apparatus of claim 21, wherein the optical burst-switched network comprises a photonic burst switched (PBS) network.

23. (Original) The apparatus of claim 21, wherein the optical burst-switched network comprises a wavelength-division multiplexed (WDM) PBS network; and the optical switching fabric provides switching of optical signals comprising different wavelengths carried over common fibers that may be respectively coupled to said at least one input fiber port and said at least one output fiber port.

24. (Previously Presented) The apparatus of claim 21, wherein execution of the machine-executable instructions performs the further operations of:

receiving BGP UPDATE messages from another BGP router that is external to the OBS network containing a route advertisement; and

dynamically updating a routing table maintained by the BGP router to reflect the availability of a route specified in the route advertisement.

25. (Previously Presented) The apparatus of claim 24, wherein execution of the machine-executable instructions performs the further operations of:

generating a new BGP UPDATE message identifying the availability of a new route including route segments contained in an BGP UPDATE message received by the EGP router concatenated with a route segment through the BGP router; and

sending the BGP UPDATE message to another BGP router that is external to the OBS network to advertise the availability of the new route:

26. (Original) The apparatus of claim 24, wherein execution of the machine-executable instructions performs the further operations of:

receiving data including a routing request identifying a destination address to which the data is to be routed;

selecting a route from among routing data stored in the routing table that may be used to reach the destination address; and

forwarding the data to a next hop in the route that is selected.

27. (Original) The apparatus of claim 26, wherein the apparatus comprises an ingress node at which the data is received, and the data is forwarded to an egress node of the OBS network via execution of the machine-executable instructions to perform operations including:

reserving a lightpath spanning between the ingress node and an egress node that corresponds to the next hop in the route; and

sending the data as one or more data bursts over the lightpath that is reserved.

28. (Original) The apparatus of claim 26, wherein the apparatus comprises an egress node at which the data is received, and the data is forwarded to an ingress node of an OBS network that is external from the OBS network in which the apparatus is deployed via execution of the machine-executable instructions to perform operations including:

reserving a lightpath spanning between the egress node and the ingress node of the external OBS network; and

sending the data as one or more data bursts over the lightpath that is reserved.

29. (Original) The apparatus of claim 26, wherein the apparatus comprises an egress node at which the data is received, and the data is forwarded to an ingress node of a network that is external from the OBS network in which the apparatus is deployed via execution of the machine-executable instructions to perform operations including:

employing an Ethernet-based protocol to facilitate transmission of the data between the egress node and the ingress node.

30. (Previously Presented) A machine-readable medium to provide instructions, which when executed by a processor in an apparatus comprising an edge node in an

optical switched network, cause the switching node apparatus to which when executed by said at least one processor perform operations to enable the apparatus to function as a Border Gateway Protocol (BGP) router, including:

receiving lightpath route availability information corresponding to an availability of a route that may be used to route data through an OBS network in which the apparatus may be deployed;

generating Border Gateway Protocol (BGP) UPDATE message including an extension to a path attributes field to enable advertisement of availability or non-availability of one or more communication paths between an ingress and an egress BGP router in a given OBS network; and

sending the BGP UPDATE message to another BGP router that is external to the OBS network in which the apparatus may be deployed to advertise the availability of the route.

31. (Original) The machine-readable medium of claim 30, wherein the optical burst-switched network comprises a photonic burst switched (PBS) network.

32. (Original) The machine-readable medium of claim 30, wherein the optical burst-switched network comprises a wavelength-division multiplexed (WDM) PBS network.

33. (Previously Presented) The machine-readable medium of claim 30, wherein execution of instructions performs the further operations of:

receiving BGP UPDATE messages from another BGP router that is external to the OBS network containing a route advertisement; and

dynamically updating a routing table maintained by the BGP router to reflect the availability of a route specified in the route advertisement.

34. (Previously Presented) The machine-readable medium of claim 33, wherein execution of the instructions performs the further operations of:

generating a new BGP UPDATE message identifying the availability of a new route including route segments contained in an BGP UPDATE message received by the BGP router concatenated with a route segment through the BGP router; and

sending the BGP UPDATE message to another BGP router that is external to the OBS network to advertise the availability of the new route:

35. (Original) The machine-readable medium of claim 33, wherein execution of the machine-executable instructions performs the further operations of:

receiving data including a routing request identifying a destination address to which the data is to be routed;

selecting a route from among routing data stored in the routing table that may be used to reach the destination address; and

forwarding the data to a next hop in the route that is selected.

36. (Original) The machine-readable medium of claim 35, wherein the apparatus comprises an ingress node at which the data is received, and the data is forwarded to an egress node of the OBS network via execution of the instructions to perform operations including:

reserving a lightpath spanning between the ingress node and an egress node that corresponds to the next hop in the route; and

sending the data as one or more data bursts over the lightpath that is reserved.

37. (Original) The machine-readable medium of claim 35, wherein the apparatus comprises an egress node at which the data is received, and the data is forwarded to an ingress node of an OBS network that is external from the OBS network in which the apparatus is deployed via execution of the instructions to perform operations including:

reserving a lightpath spanning between the egress node and the ingress node of the external OBS network; and

sending the data as one or more data bursts over the lightpath that is reserved.

38. (Original) The machine-readable medium of claim 35, wherein the apparatus comprises an egress node at which the data is received, and the data is forwarded to an ingress node of a network that is external from the OBS network in which the apparatus is deployed via execution of the instructions to perform operations including employing an Ethernet-based protocol to facilitate transmission of the data between the egress node and the ingress node.

39. – 45. (Cancelled)